Ulster County Road Safety Plan

Stakeholder Meeting #1

September 3rd, 2020

Stakeholder Meeting Agenda

- Importance of Safety
  - Project and Plan Purpose
- Regional Safety Data Analysis
  - Crash trends and rate analysis
  - Collision types and contributing circumstances
- Network Screening
  - Methodology
  - Priority Lists
- Stakeholder Input Demonstration
  - Confirming Online Priority Locations
  - Countermeasure/Strategy Voting
- Meeting Wrap Up
  - Timeline for Stakeholder feedback
  - Next Steps

Importance of Safety

Project and Plan Purpose

Plan Objectives

- Understand factors contributing to crashes throughout Ulster County
  - Behaviors, roadway characteristics, types, external factors
- Determine where on the system crashes are over-represented
- Identify and recommend effective solutions (policy, programmatic, project)
- Provide Board with specific suggestions to improve safety in the region
- Encourage implementation to make progress toward safety targets

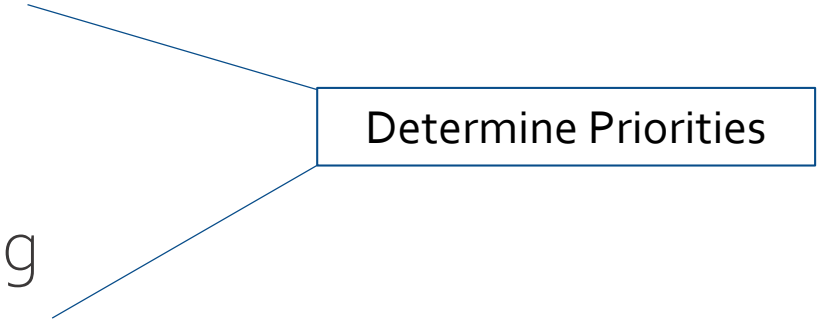
Regional Plan

- Comprehensive
- System-wide
- Multidisciplinary
- Proactive
- Results

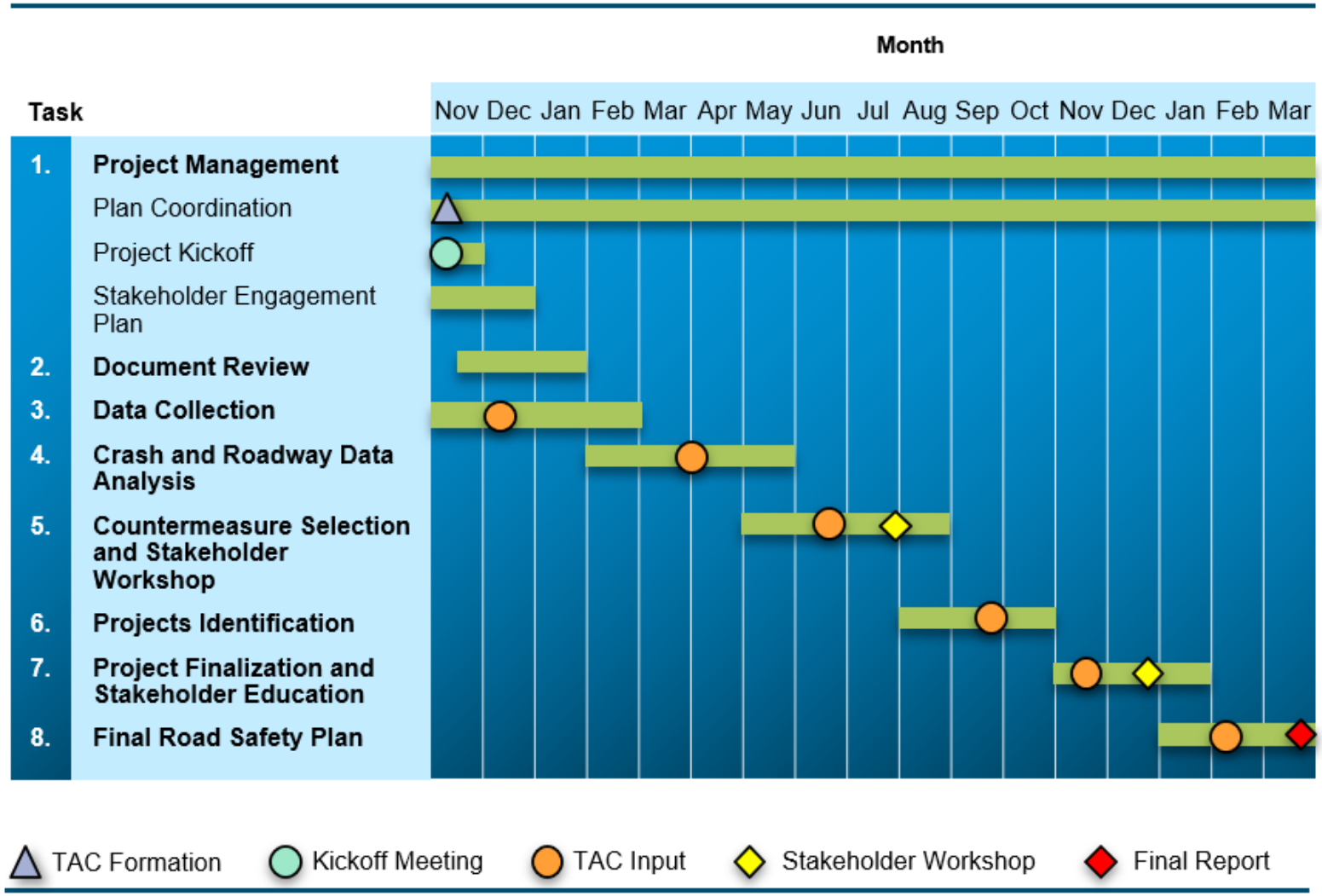
A regional safety plan provides a framework for organizing stakeholders to identify, analyze, and prioritize safety improvements on the regional transportation network

The Ulster Safety Plan

- Crash Trends (total, severe, rates)
- Over-represented crash types (rear end, head on)
- Over-represented contributing factors (intersections, pedestrians)
- Why and where are over-represented crashes occurring
  - Characteristics of crashes
  - Characteristics of roadway
- Solutions
  - Region-wide programs/policies
  - 10 locations - projects



Project Schedule



Regional Safety Data Analysis

Crash trends and rate analysis

Collision types and contributing circumstances

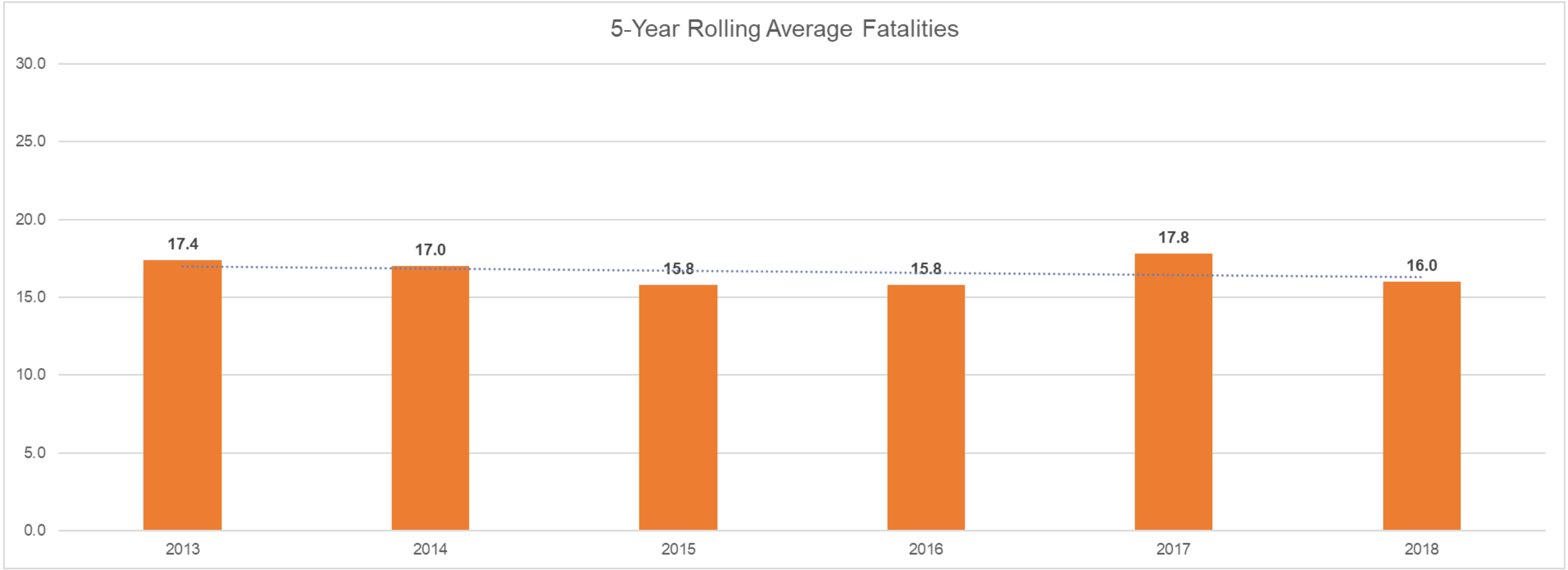
Key Takeaways

- Serious Injuries and Fatalities both declined between 2010 and 2016, but the highest number of fatalities occurred in 2017, while serious injuries increased by 25% between 2017 and 2018
- Even when normalized for VMT or population, a disproportionate number of fatalities have occurred in Lloyd. Denning also has a notably high serious injury rate
- Roadway Departure emerges as a key emphasis area in Ulster County, accounting for almost 40% of fatalities and serious injuries where a crash type could be identified
- The county's arterial roads have the highest rates of fatalities and serious injuries

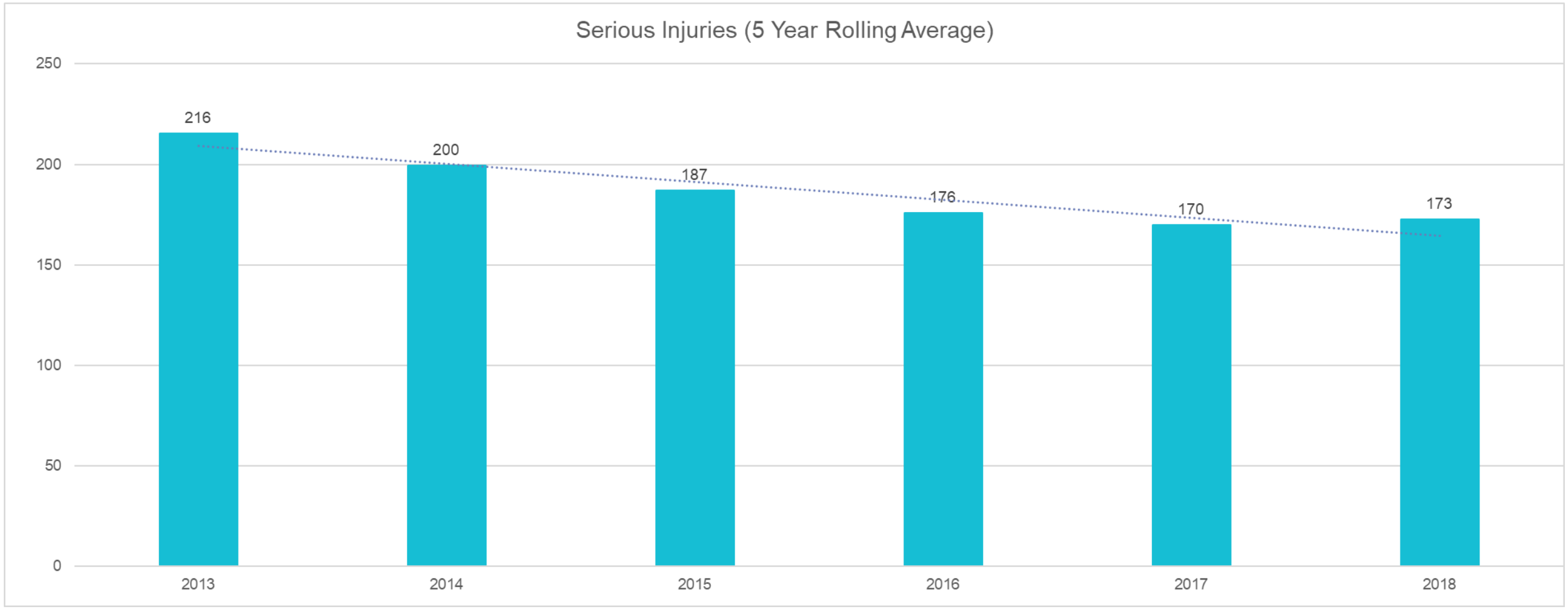
Ulster County Fatality and Serious Injury Trends

Crash Severity by Year			
Year	Fatalities	Serious Injuries	Total Crashes
2010	22	241	6027
2011	14	199	6140
2012	14	201	6118
2013	23	201	6364
2014	12	156	6373
2015	16	178	6240
2016	14	143	6066
2017	24	171	5917
2018	14	216	6370
Total	**153**	**1706**	**55615**
Average	17	190	6179

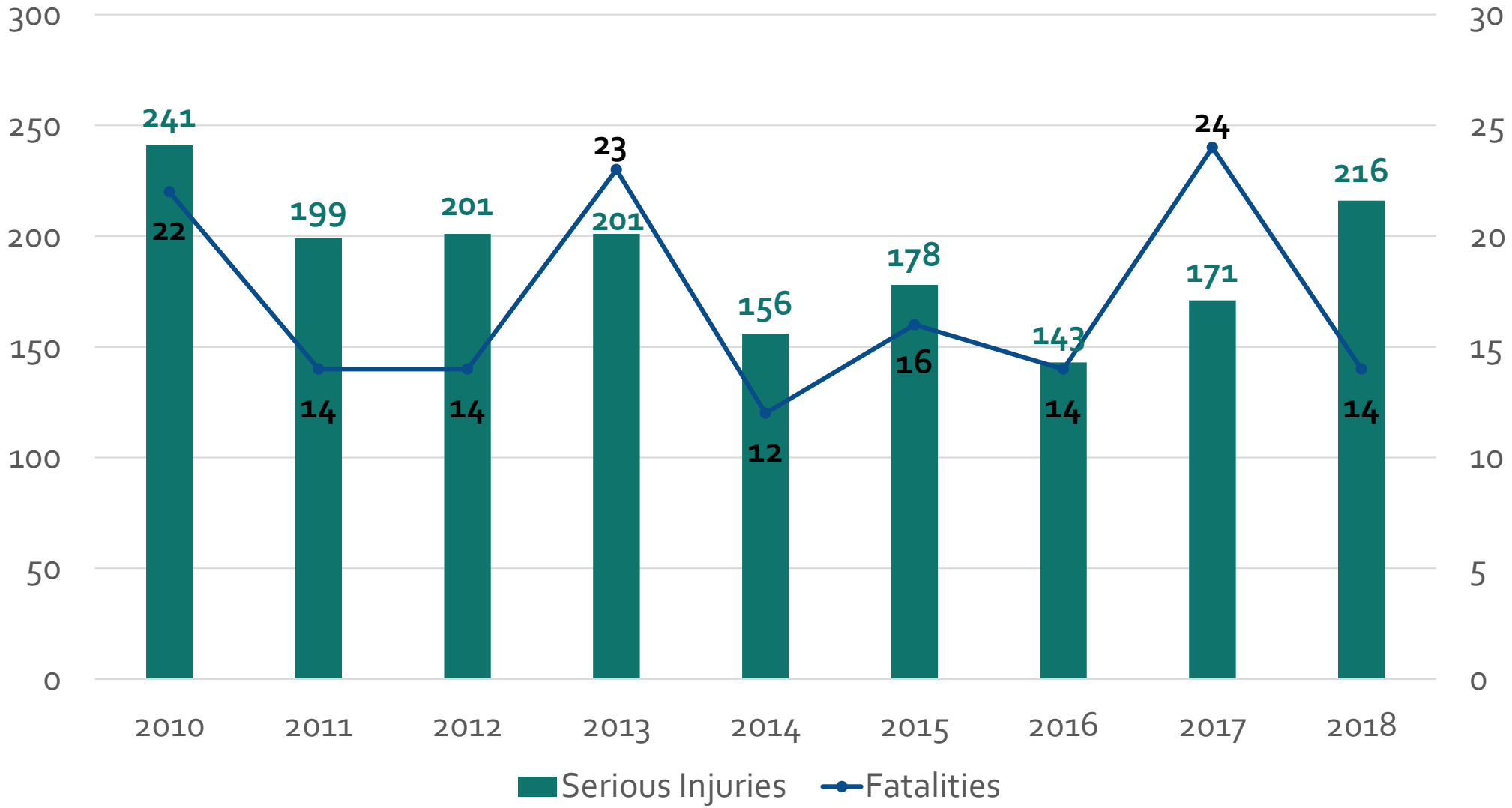
Fatalities (5 Year Rolling Average)



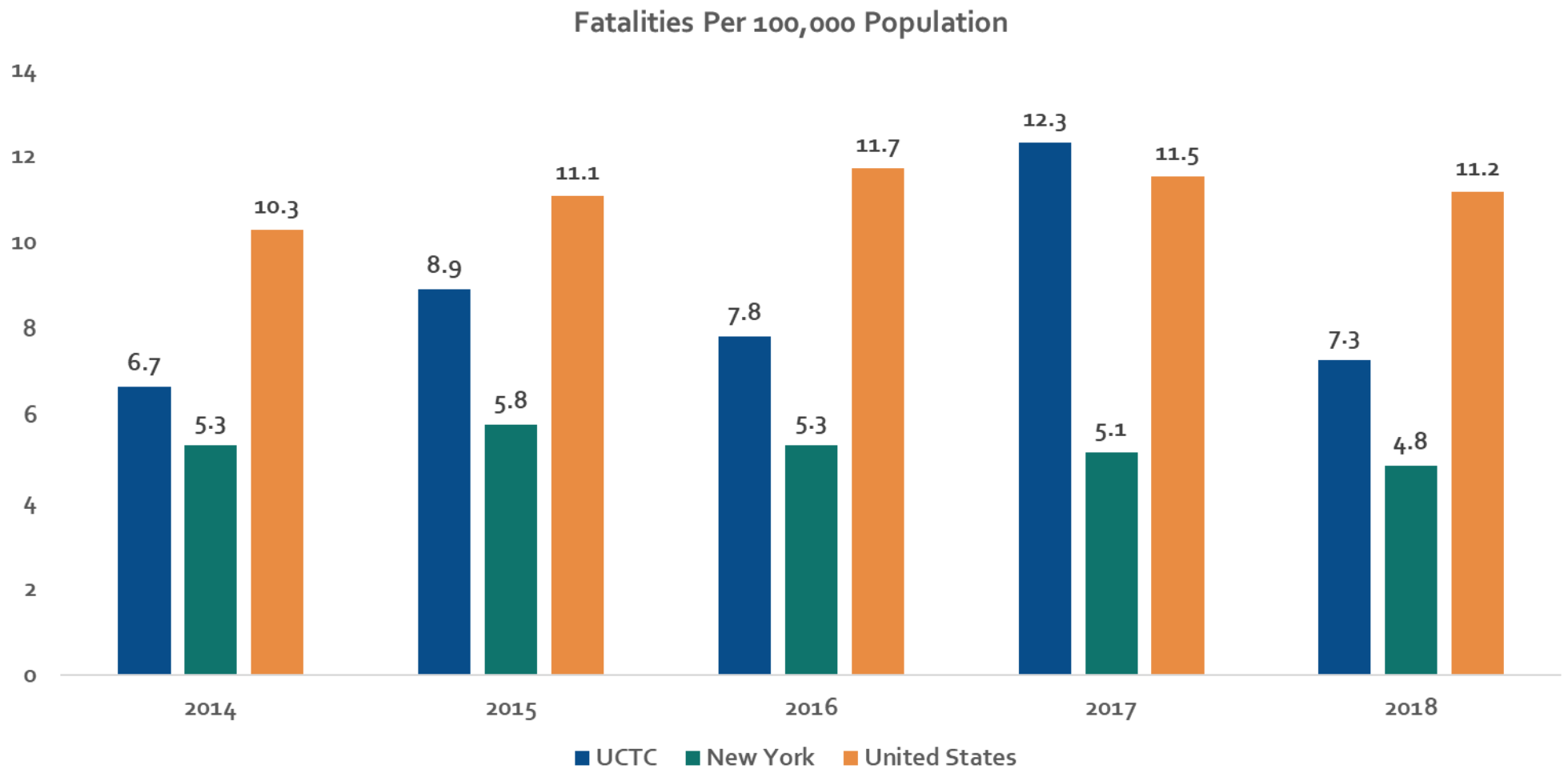
Serious Injuries (5 Year Rolling Average)



Injury Severity by Year



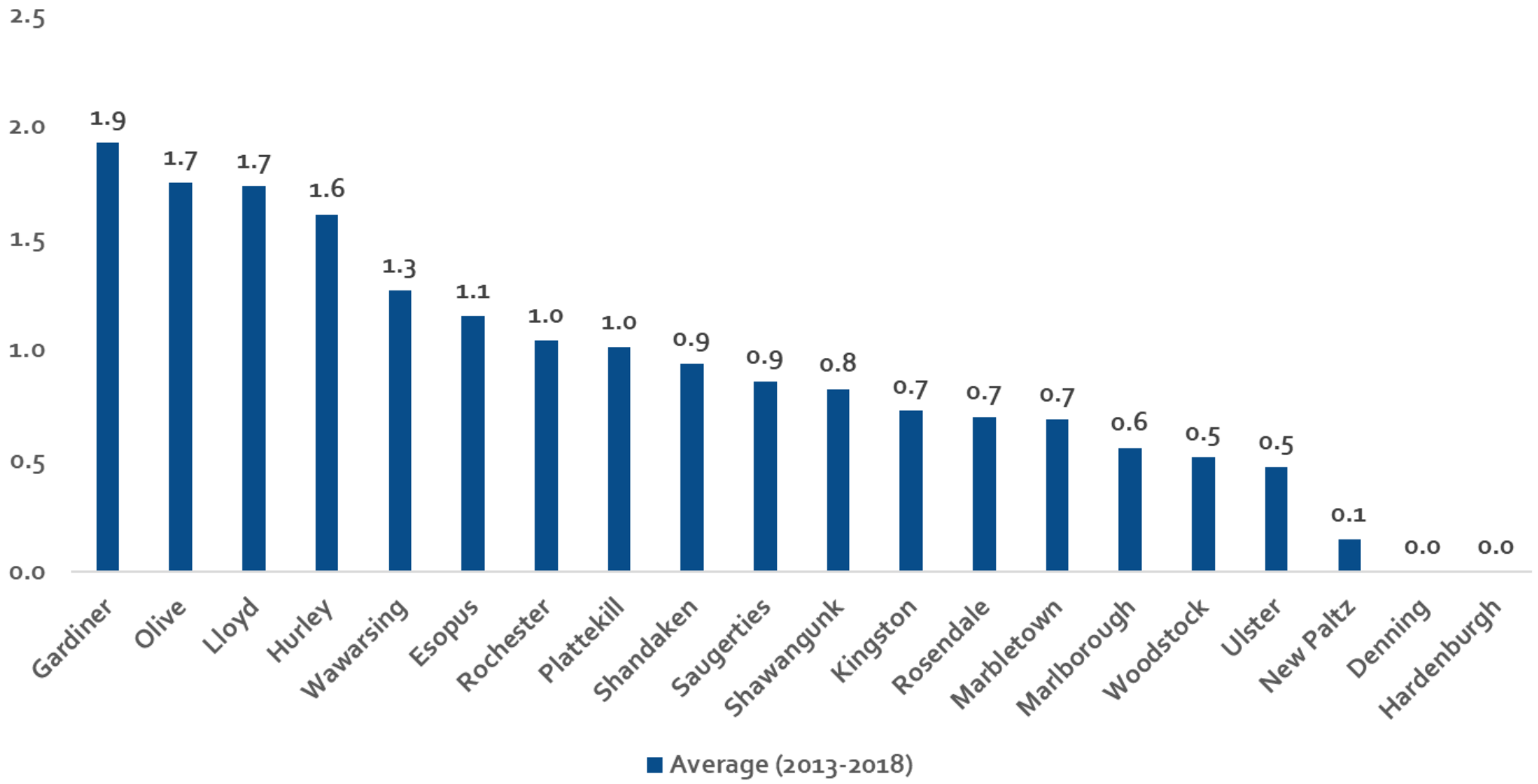
Fatalities Per 100,000 People (2013-2017)



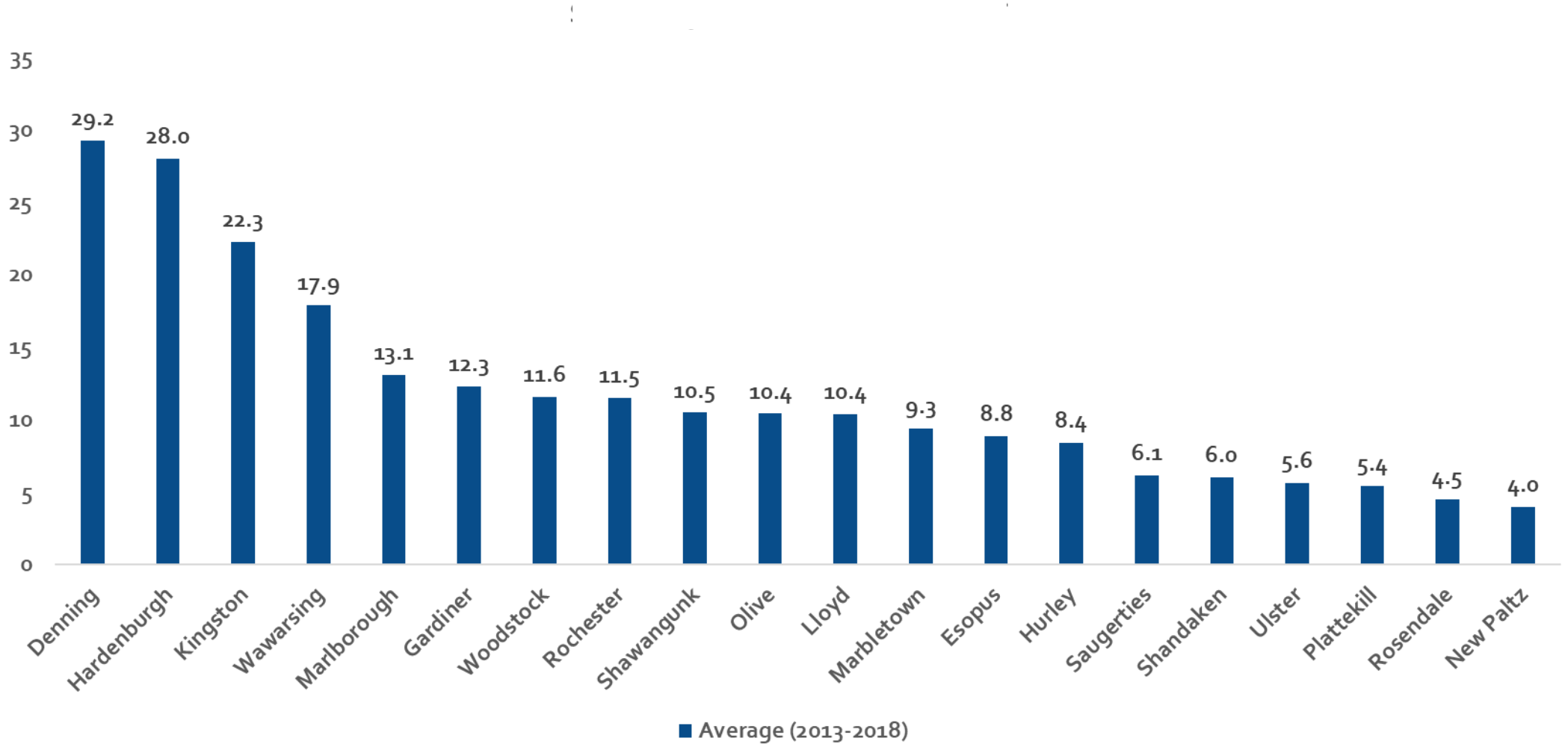
Crash Severity by Jurisdiction (Percentage, 2010-2018)

Crash Severity by Jurisdiction				
Jurisdiction	**Fatalities**	**Serious Injuries**	**All Injuries**	**Total Crashes**
Catskill	0%	0%	0%	0%
Denning	0%	1%	0%	0%
Ellenville	0%	2%	2%	1%
Esopus	5%	5%	4%	4%
Gardiner	3%	4%	2%	3%
Hardenburgh	0%	0%	0%	0%
Hurley	5%	3%	2%	2%
Kingston	5%	13%	14%	16%
Lloyd	12%	8%	8%	7%
Marbletown	3%	5%	3%	4%
Marlborough	4%	5%	4%	3%
New Paltz	3%	5%	9%	10%
Olive	7%	2%	2%	2%
Plattekill	8%	5%	5%	4%
Rochester	8%	5%	3%	3%
Rosendale	3%	3%	3%	3%
Saugerties	12%	10%	9%	8%
Shandaken	1%	2%	2%	1%
Shawangunk	3%	4%	4%	4%
Ulster	9%	10%	15%	16%
Wawarsing	7%	7%	5%	5%
Woodstock	1%	2%	2%	2%

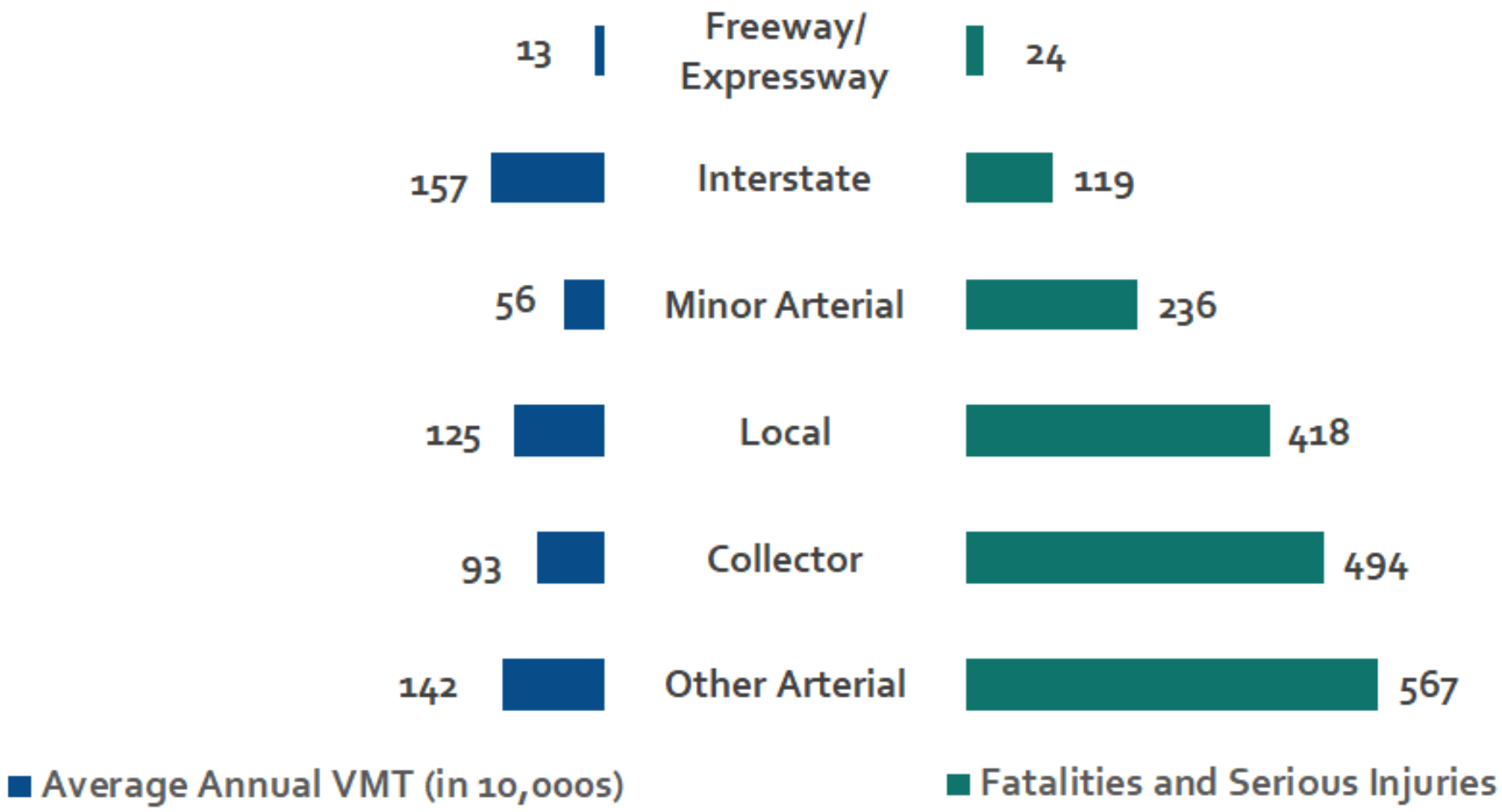
Fatalities per 100 Million VMT



Serious Injuries Per 100 Million VMT



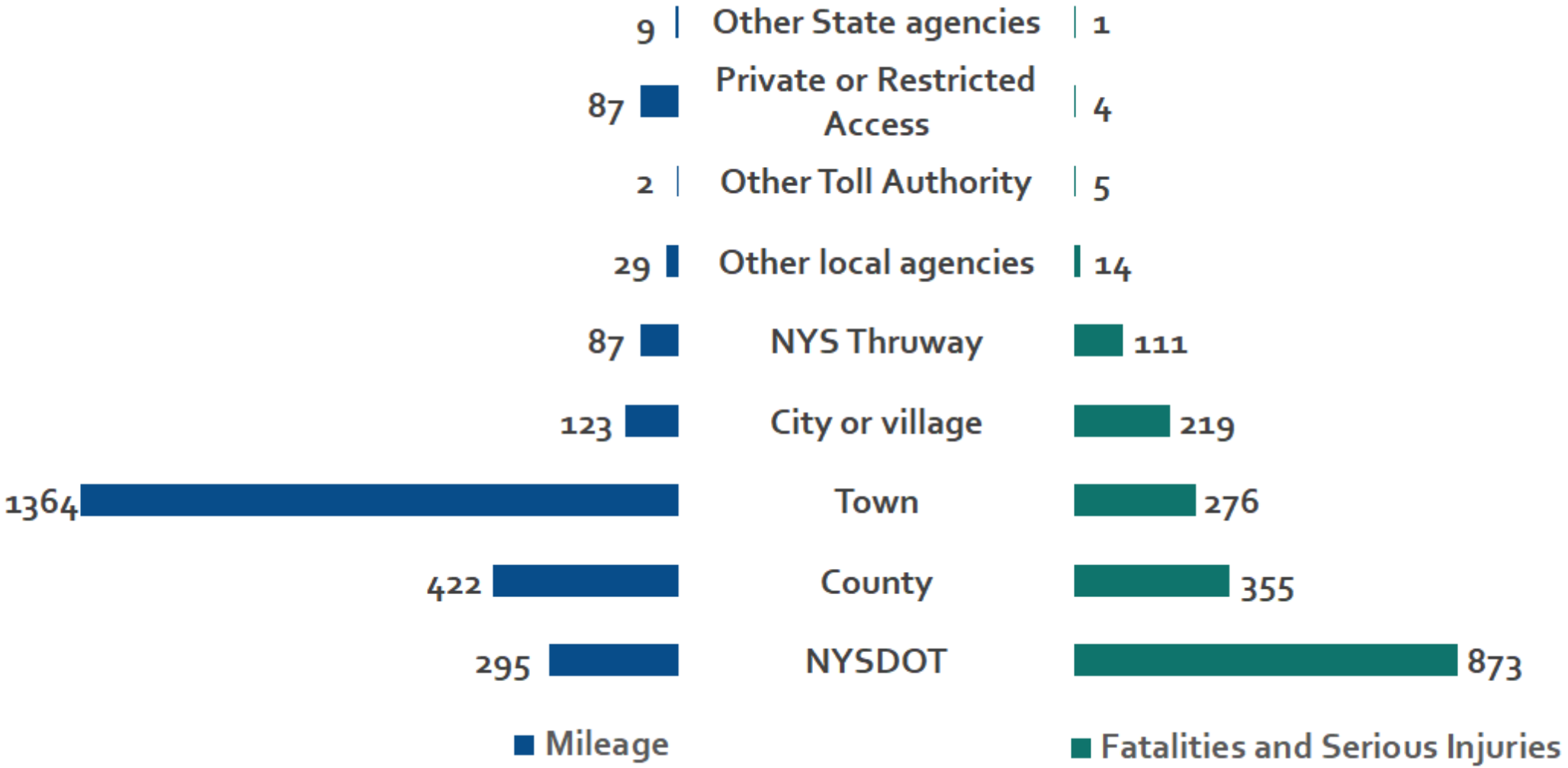
Fatalities and Serious Injuries by Functional Class and Average Annual VMT, 2010-2018



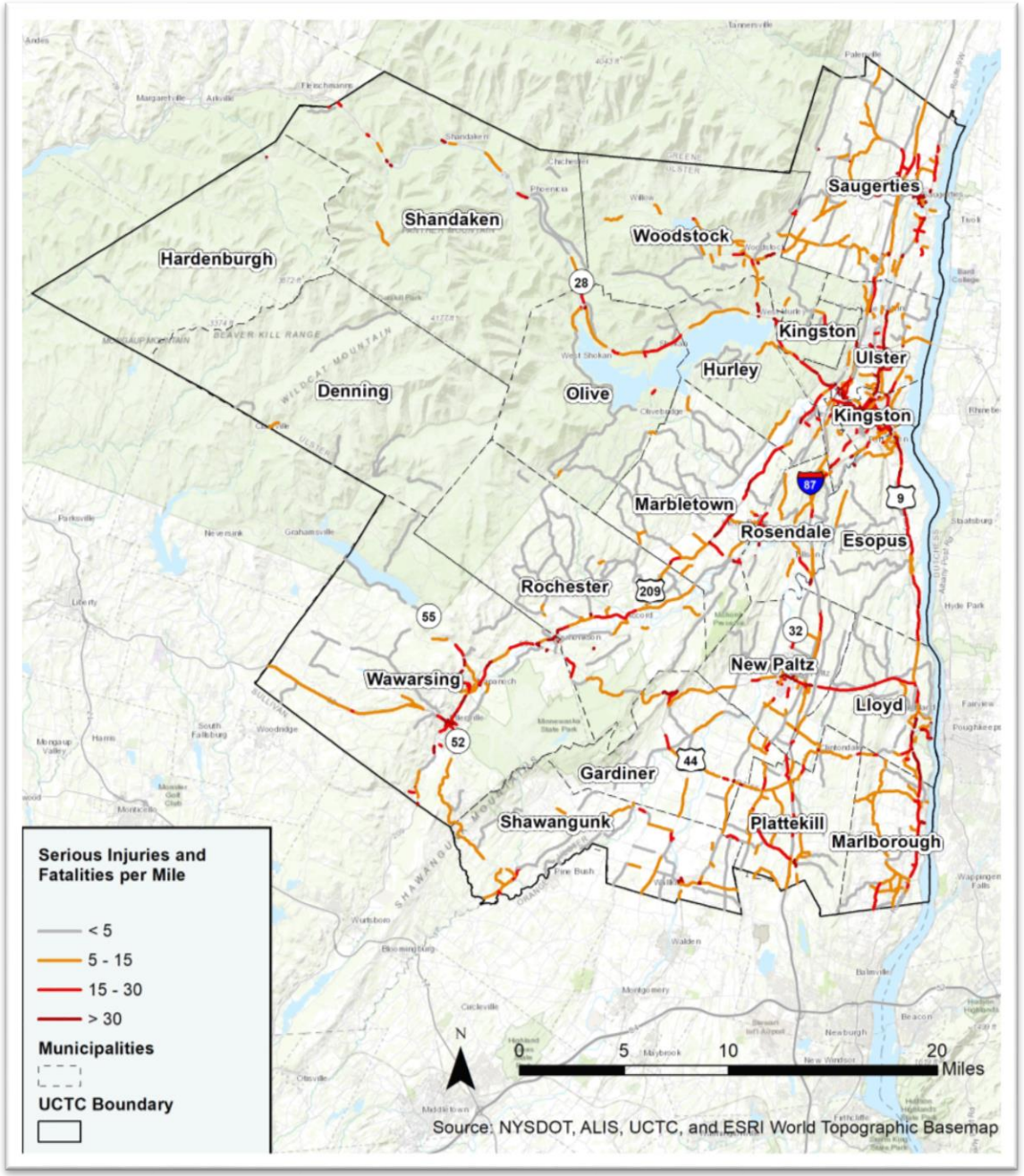
Fatalities and Serious Injuries by Road Context, Rate Per 100,000 VMT (2010-2018)

Rural	**45.54**
Collector	64.64
Interstate	14.30
Local	36.82
Minor Arterial	40.94
Other Arterial	47.03
Urban	**32.54**
Collector	59.44
Freeway/Expressway	21.70
Interstate	8.41
Local	38.89
Minor Arterial	49.71
Other Arterial	43.32
All Roads	**36.09**

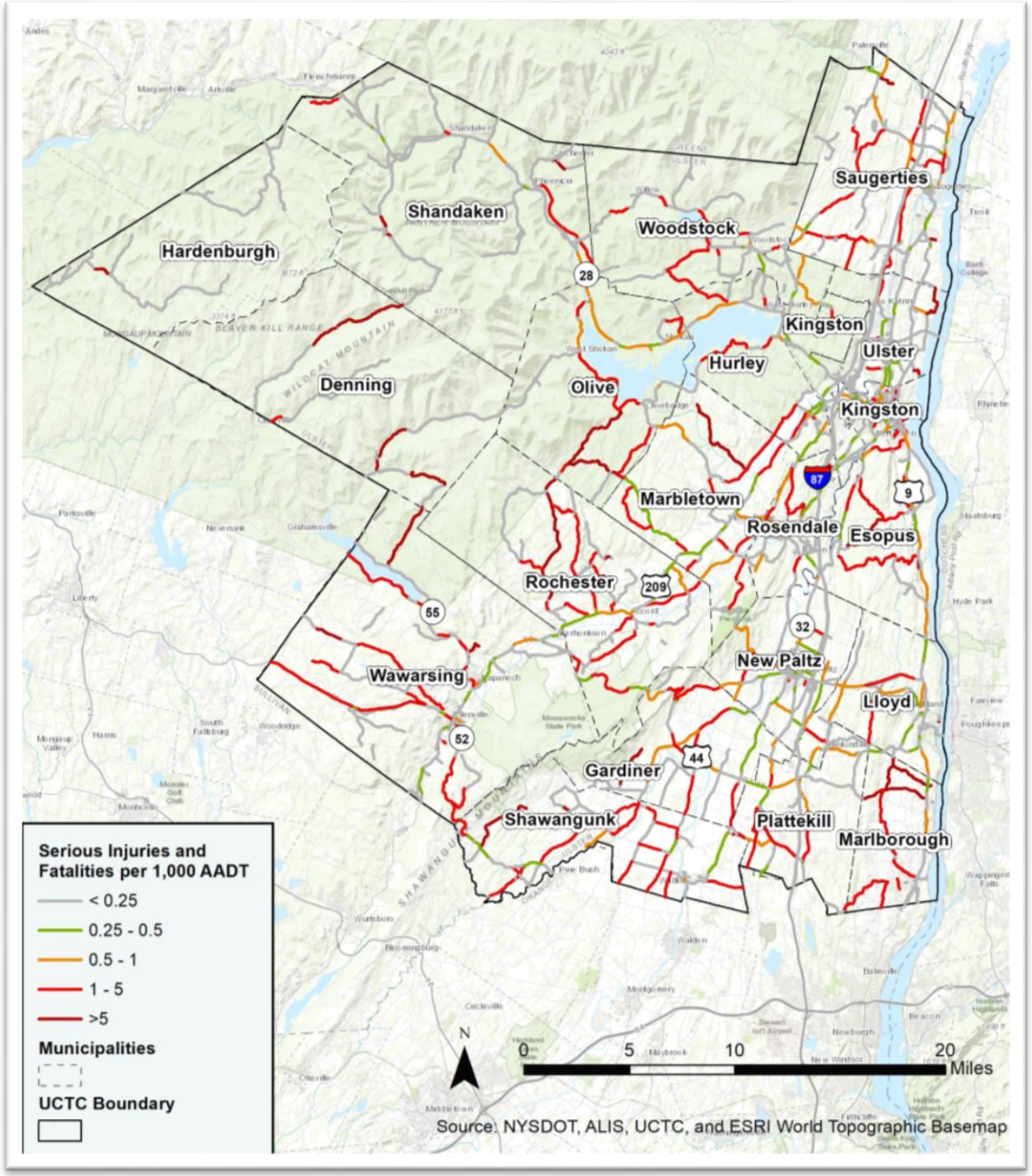
Fatalities and Serious Injuries by Roadway Ownership, 2010-2018



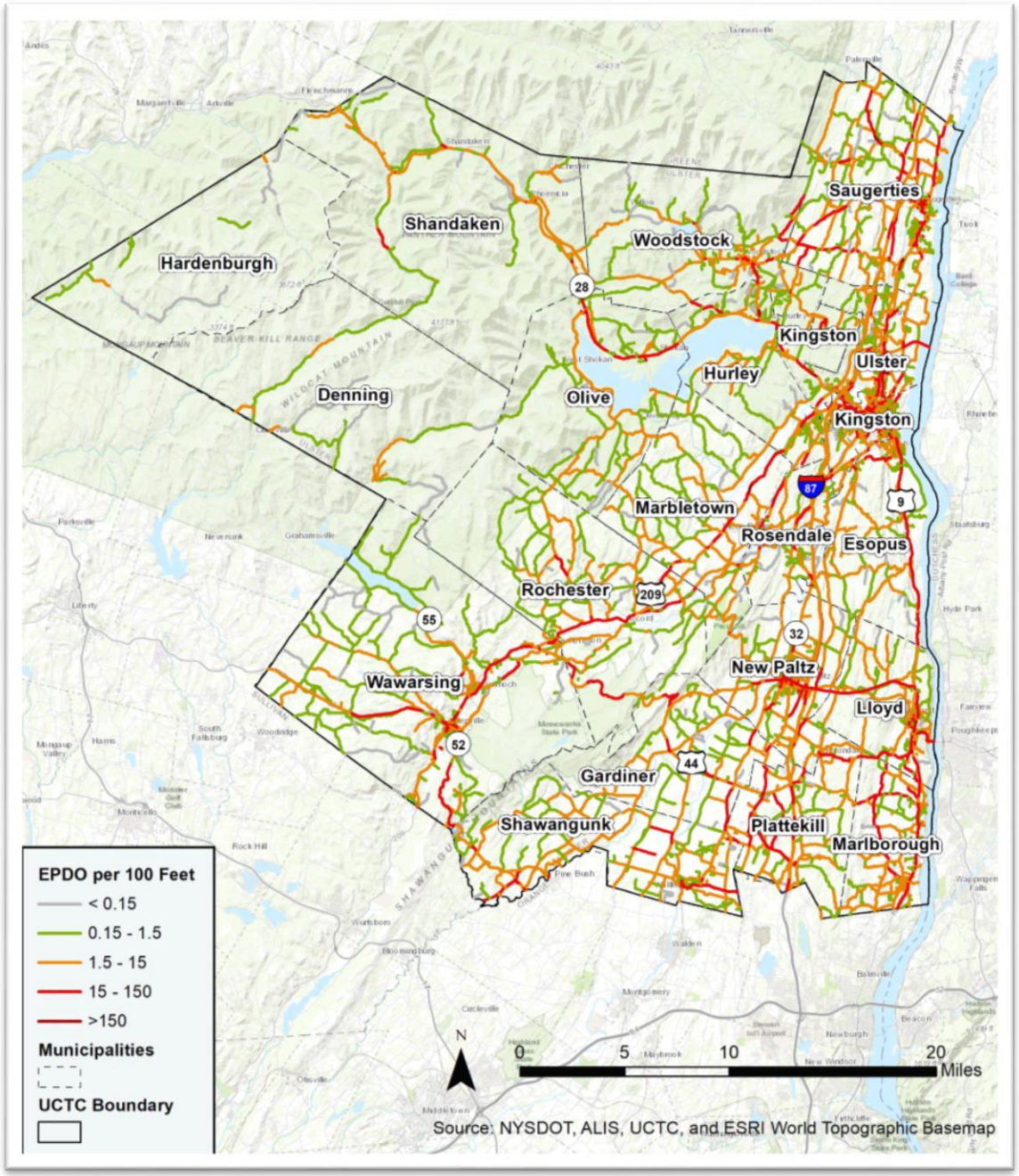
Serious Injuries and Fatalities Per Mile (2010-2018)



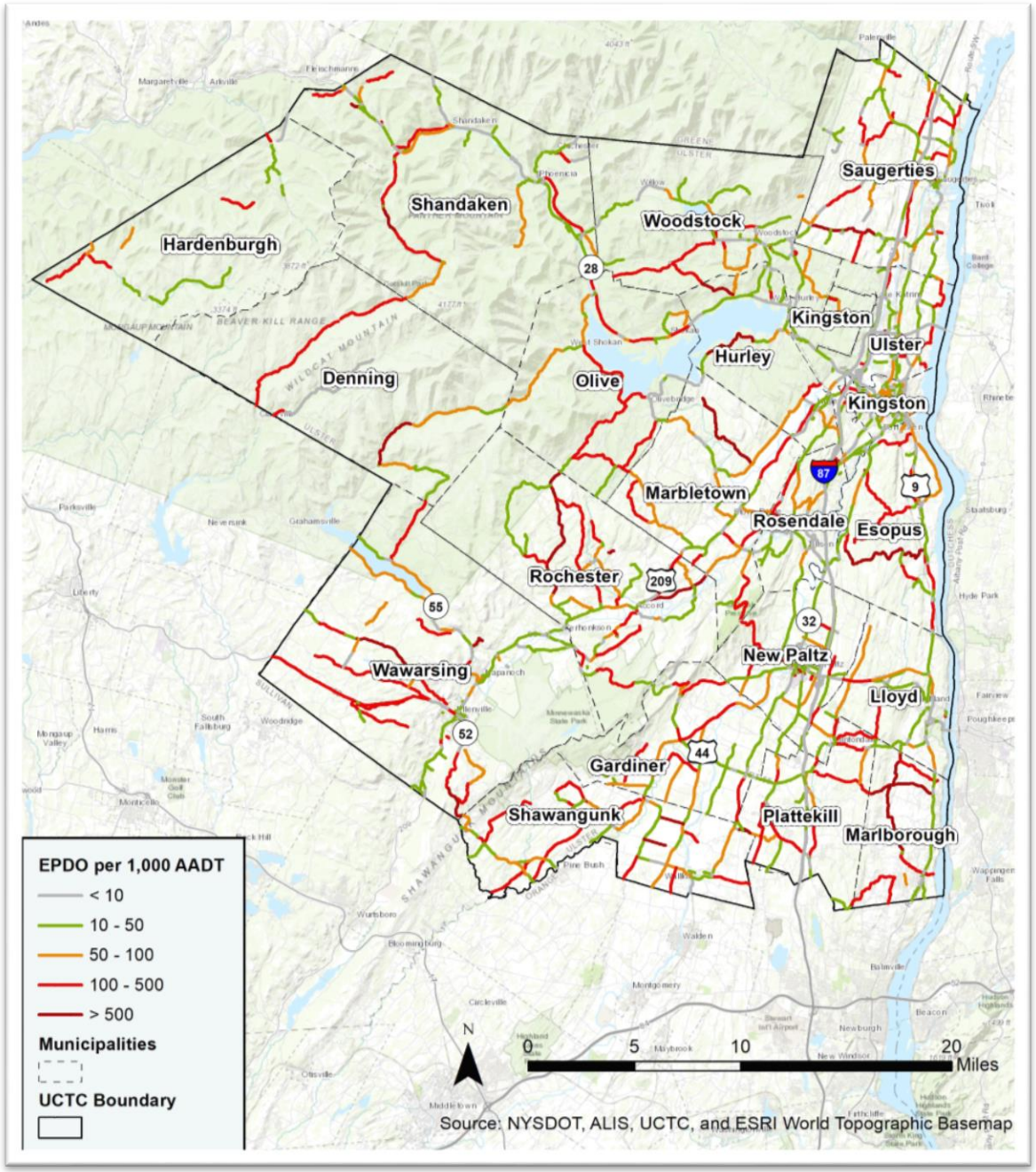
Serious Injuries and Fatalities Normalized by AADT (2010-2018)



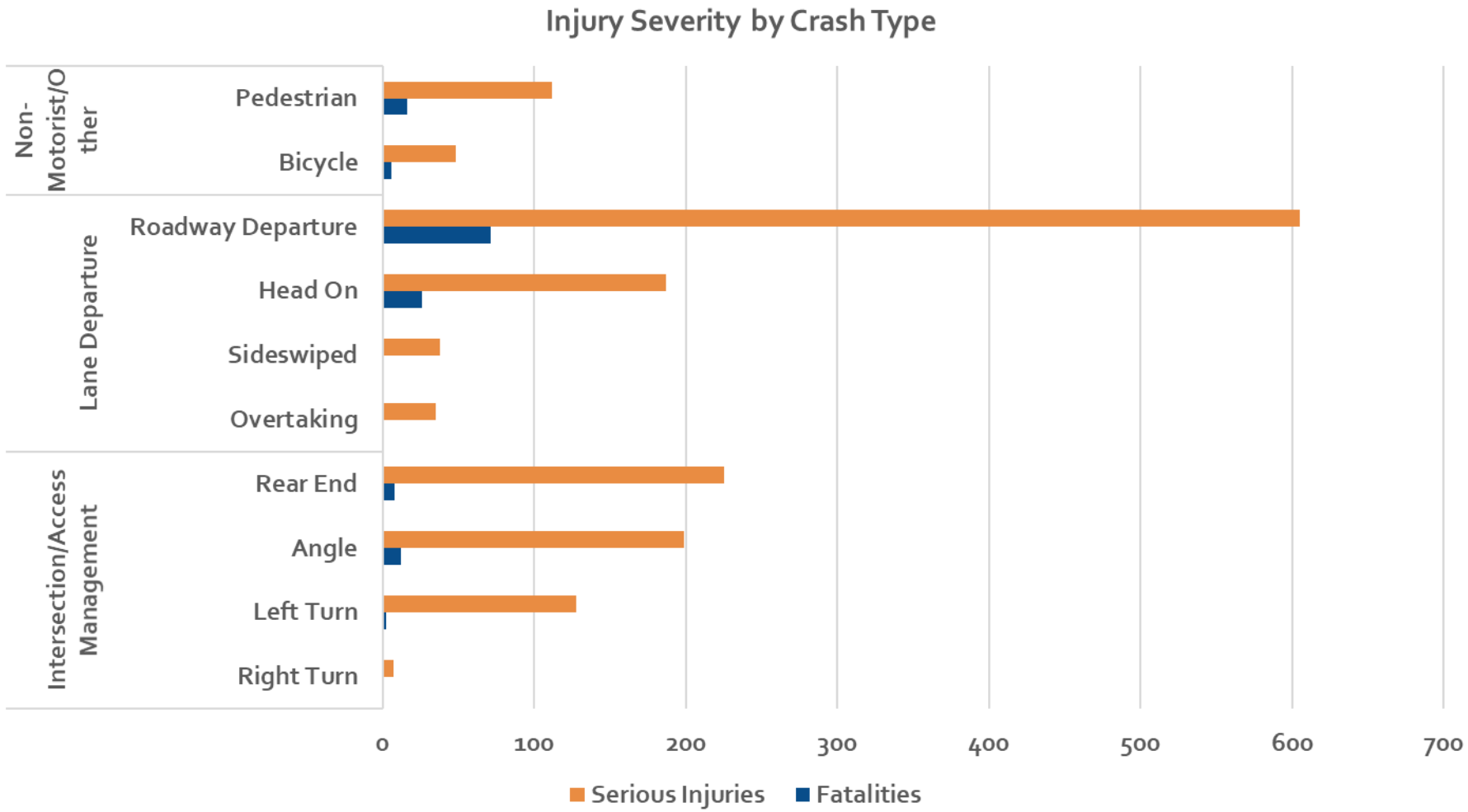
EPDO Per 100 Feet (2010-2018)



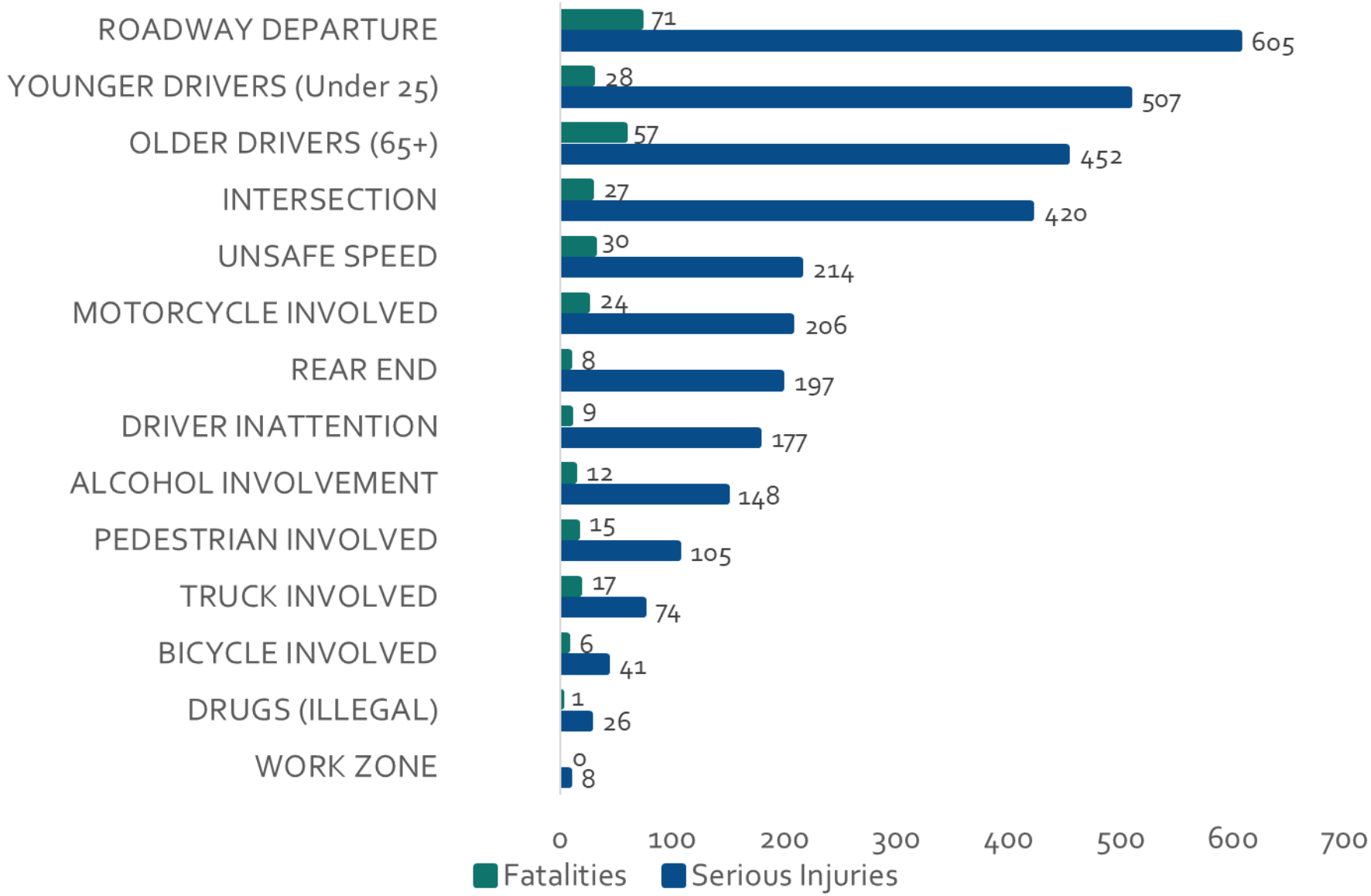
EPDO Per 1,000 AADT (2010-2018)



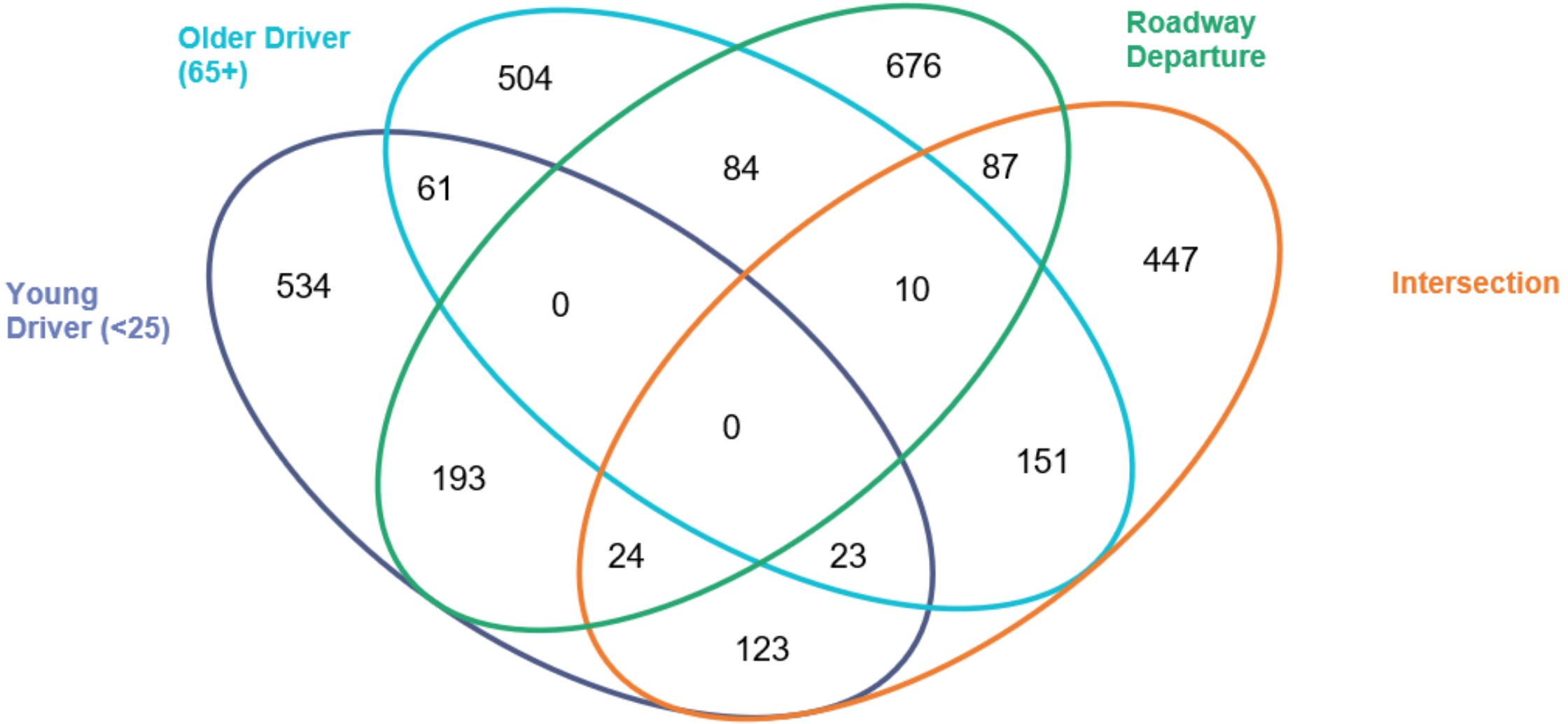
Fatalities and Serious Injuries by Crash Type, 2010-2018



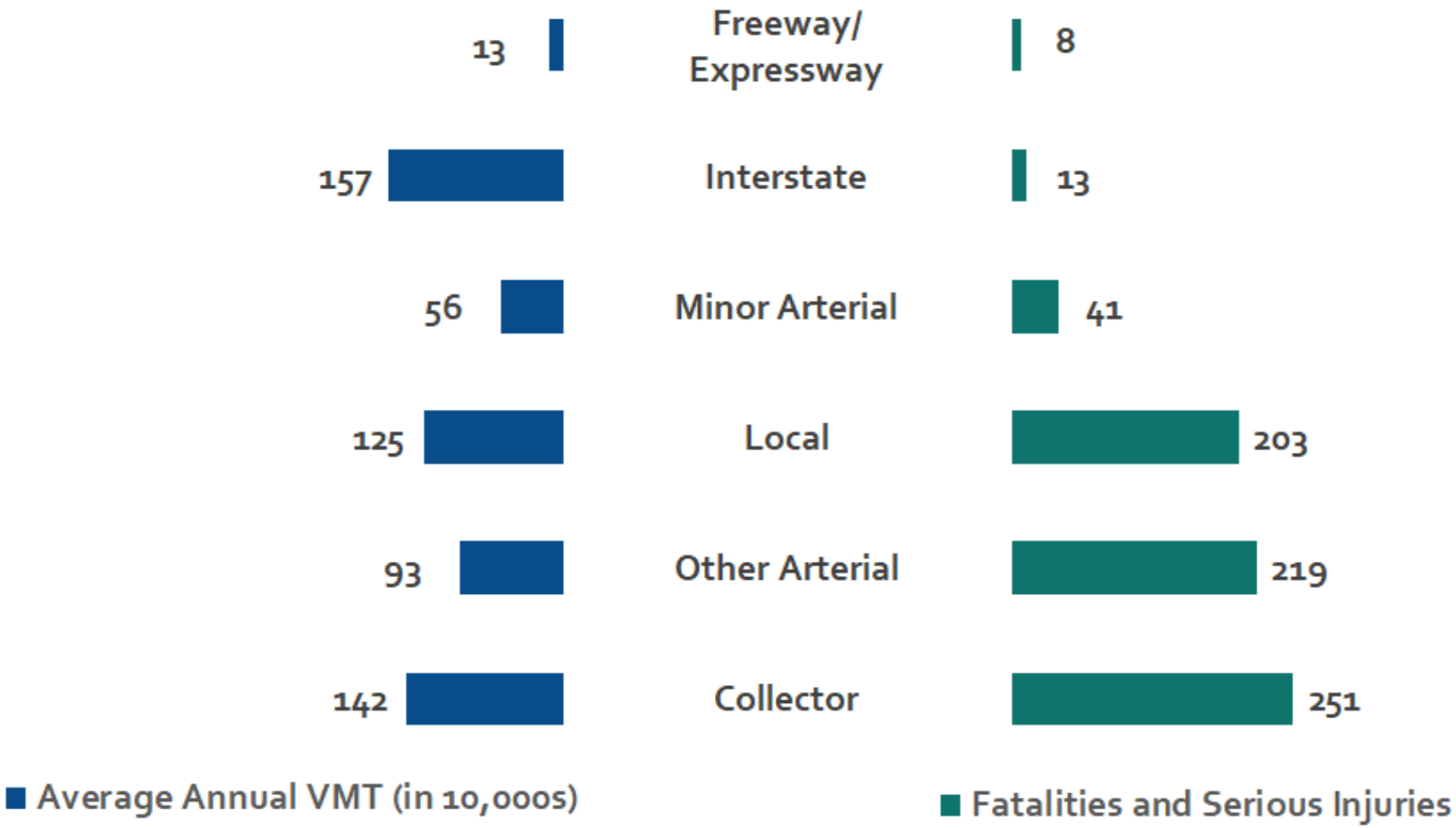
Roadway Crash Emphasis Areas, 2010-2018



Emphasis Area Overlap (2010-2018)



Fatalities and Serious Injuries by Functional Class—Roadway Departure Crashes Only, 2010-2018



Roadway Departure Severity by Jurisdiction

Jurisdiction	Fatalities	Serious Injuries	All Injuries	Total Crashes
Catskill	0%	0%	0%	0%
Denning	0%	1%	1%	0%
Ellenville	0%	0%	0%	1%
Esopus	6%	5%	6%	5%
Gardiner	4%	5%	4%	4%
Hardenburgh	0%	0%	0%	0%
Hurley	4%	4%	3%	3%
Kingston	6%	4%	5%	7%
Lloyd	8%	7%	6%	7%
Marbletown	3%	6%	5%	5%
Marlborough	1%	2%	4%	4%
New Paltz	1%	5%	7%	8%
Olive	6%	4%	3%	3%
Plattekill	13%	7%	8%	7%
Rochester	10%	7%	5%	5%
Rosendale	3%	5%	4%	4%
Saugerties	15%	12%	10%	10%
Shandaken	3%	1%	3%	2%
Shawangunk	1%	6%	6%	5%
Ulster	8%	6%	9%	10%
Wawarsing	7%	9%	7%	6%
Woodstock	0%	2%	3%	3%

Roadway Departure Takeaways

- Roadway Departure emerges as a key emphasis area in Ulster County, accounting for almost 50% of fatalities where a crash type could be identified
- Roadway Departure crashes resulting in fatalities or serious injuries are most common on local and collector roadways
- Trees, utilities, and guide rails are the most frequent objects collided with
- Weather and roadway condition seem to play only a minor role in roadway departure crashes—58% of RWD crashes took place during clear weather conditions vs. 66% for other crash types
- 73% of RWD crashes took place on dry roadways compared to 82% of all other crashes

Bike/Ped Crash Severity (2010-2018)

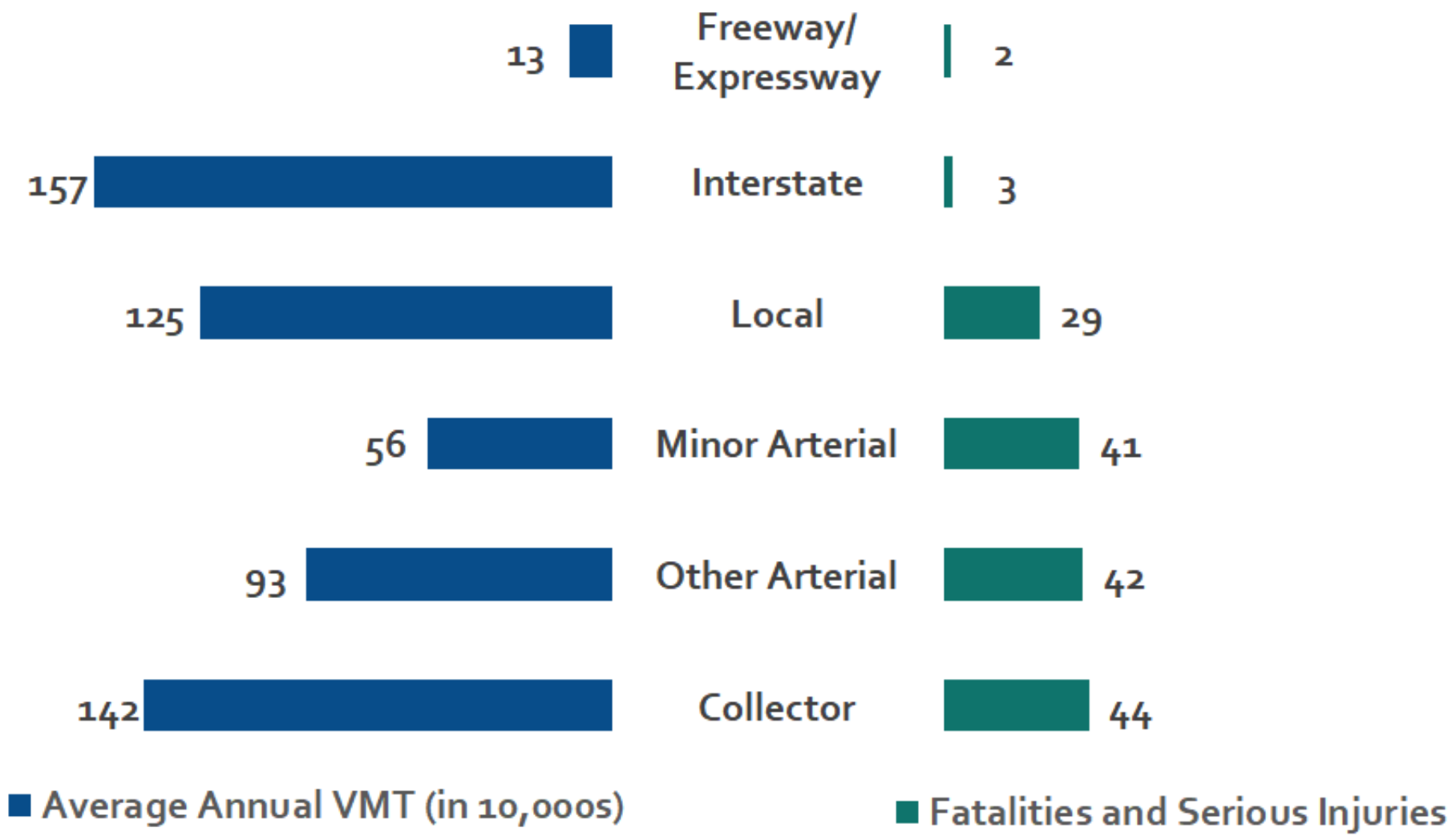
Bicyclist Crash Severity by Year			
Year	Fatalities	Serious Injuries	Total Crashes
2010	0	3	31
2011	0	2	38
2012	1	8	56
2013	1	5	53
2014	1	4	51
2015	0	4	31
2016	0	3	32
2017	2	7	39
2018	1	5	33
Total	**6**	**41**	**364**
Average	1	5	40

Pedestrian Crash Severity by Year			
Year	Fatalities	Serious Injuries	Total Crashes
2010	1	11	57
2011	0	7	69
2012	2	10	66
2013	2	13	60
2014	1	11	56
2015	0	8	57
2016	3	14	60
2017	3	15	64
2018	3	16	64
Total	**15**	**105**	**553**
Average	2	12	61

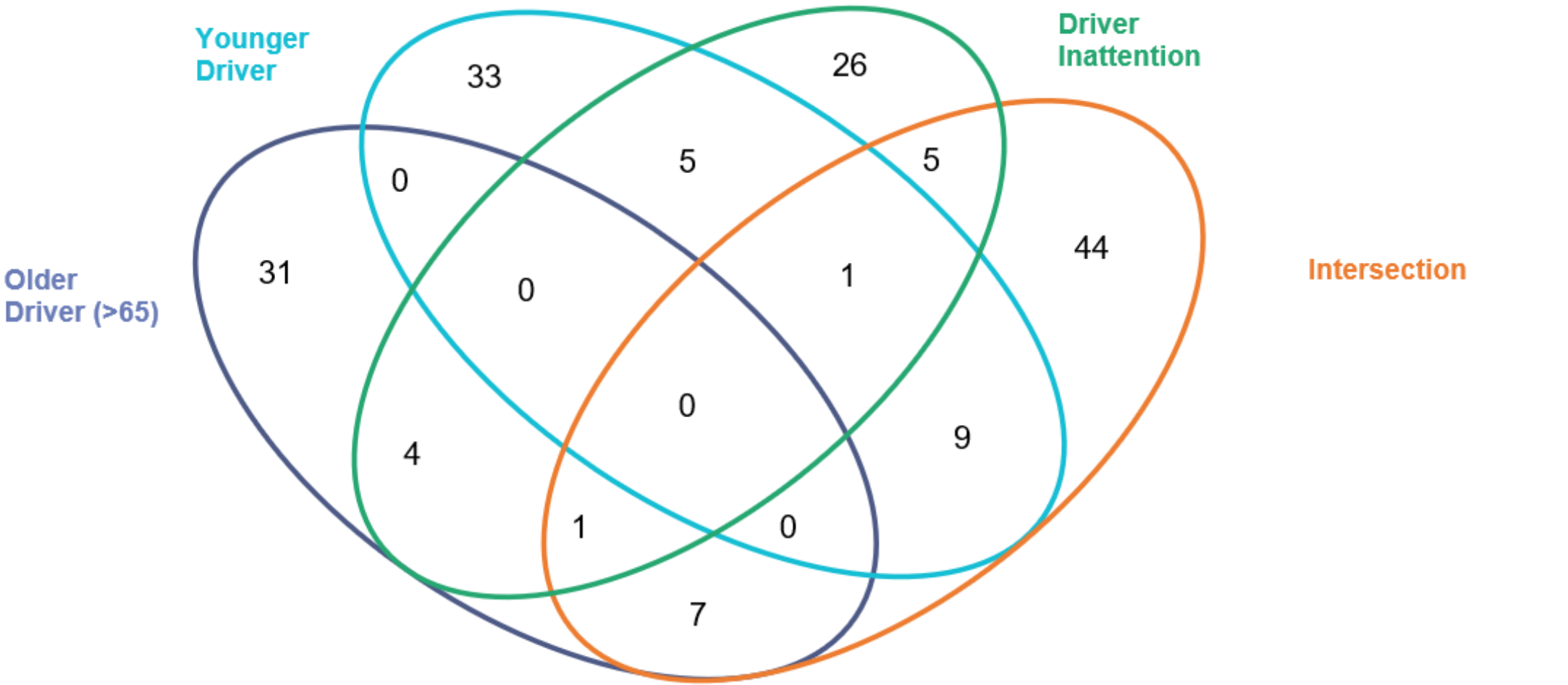
Bike/Ped Crash Severity by Jurisdiction (2010-2018)

Jurisdiction	Fatalities	Serious Injuries	All Injuries	Total Crashes
Denning	0	0	0	0
Ellenville	0	9	39	42
Esopus	3	6	28	32
Gardiner	0	3	15	15
Hardenburgh	0	0	1	1
Hurley	1	1	8	9
Kingston	3	37	297	344
Lloyd	1	8	47	50
Marbletown	0	2	14	16
Marlborough	0	7	20	17
New Paltz	1	17	103	117
Olive	1	1	6	6
Plattekill	1	6	11	17
Rochester	1	5	13	15
Rosendale	2	1	7	9
Saugerties	3	15	62	64
Shandaken	0	1	2	2
Shawangunk	1	3	9	11
Ulster	3	16	79	104
Wawarsing	0	4	24	25
Woodstock	0	4	16	19
Total	**21**	**146**	**801**	**915**

Bike/Ped Crash Severity by Functional Class (2010-2018)

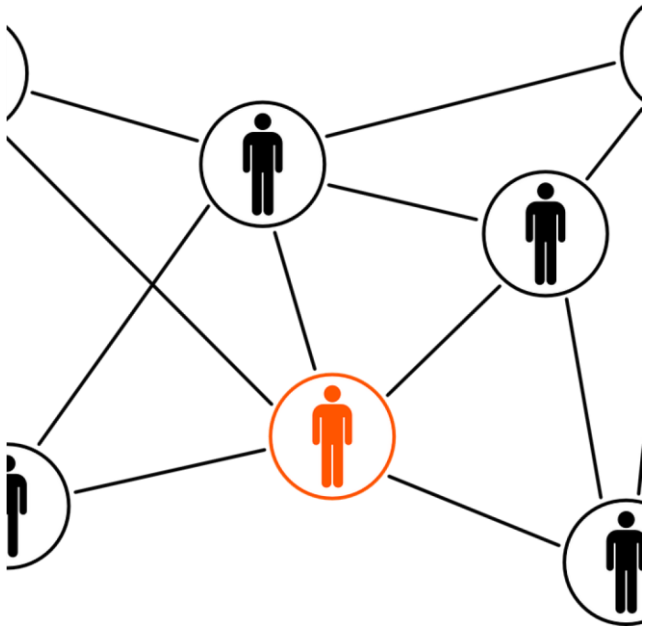


Emphasis Area Overlap for Bike/Ped Only (2010-2018)



Bike/Ped Takeaways

- Fatalities and serious injuries among people walking and biking are heavily concentrated in the county's most populated jurisdictions
- While overall numbers of fatalities and serious injuries to people walking and biking remain low, the last two years of available data show an increase
- Collectors and Arterials are the predominant functional classes for pedestrian and bicyclist fatalities and serious injuries
- Only 2 pedestrian serious injuries and 1 fatality overlapped with roadway departure crashes between 2010 and 2018 (collisions with guide rail and utility pole), and no roadway departure crashes involved bicyclists
- Bike/ped serious injuries and fatalities are more likely to occur during clear conditions (69% of crashes) than vehicle occupant injuries or fatalities (63%), which is likely due to increased bike/ped volumes in clear conditions



Network Screening

Methodology

Priority Lists

Network Screening Methodology

- Crash Data from 2014-2018
- Intersection
  - 150-ft radius at each intersection
  - Ranking Criteria: Crash frequency per AADT and crash severity
  - Removed interstates and limited access roadways
- Segments
  - Sliding window technique for segments
  - 600-ft (0.11 miles) windows, sliding at 0.01-mile increments
  - 50-ft buffer on either side of segment
  - Ranking Criteria: Crash density per AADT and crash severity per mile

Network Screening Methodology

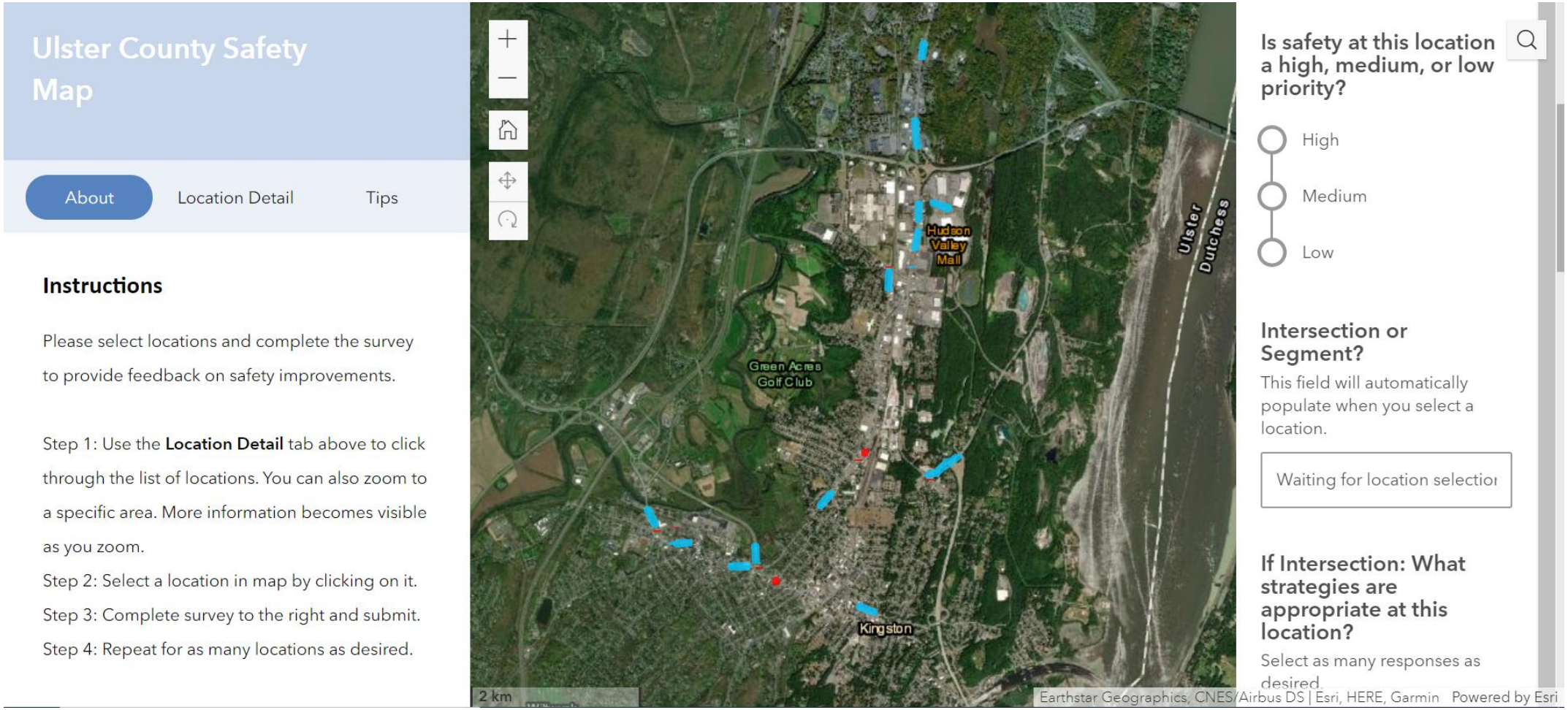
- Additional Data and Thresholds
  - Attributed roadway characteristics to locations using Network Files
  - Used averages per functional class to fill in missing data per jurisdiction
  - PIL and PII thresholds for crash totals and crash rates
  - Consolidate overlapping segments
- Top-50 locations
  - Do these make sense?

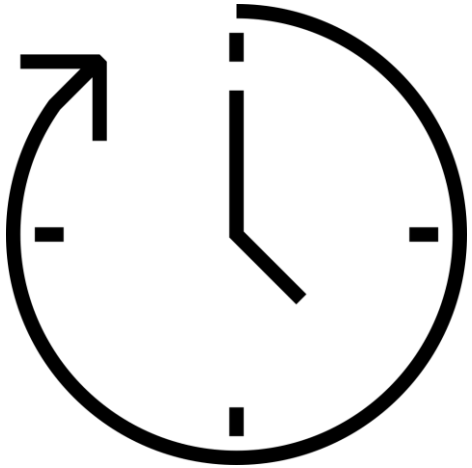
Stakeholder Input Demonstration

Confirming Online Priority Locations

Countermeasure/Strategy Voting

Arc GIS Online Demonstration





Meeting Wrap Up

Timeline for Stakeholder feedback

Next Steps

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